

CHAPTER – 1 – NATURE OF PHYSICAL WORLD AND MEASUREMENT

I. Answer in brief (2/3 marks)

1. Define Physical quantity.
2. What are the types of physical quantities? Explain in brief.
3. Define Unit. What are its types?
4. Write a note on different types of measurement systems.
5. Write a brief note on SI unit system.
6. What is the triple point of water?
7. Define Radian and Steradian.
8. Write a brief note on (i) Screw gauge, (ii) Vernier caliper, (iii) Triangulation method, (iv) Parallax method, (v) Radar method.
9. Why is the cylinder used in defining kilogram is made up of platinum – iridium alloy?
10. What is the CSL (or) Chandrasekhar Limit?
11. What is the smallest practical unit of time?
12. Define Mass. Write its SI unit.
13. Write in brief about accuracy and precision.
14. Define significant figures.
15. The length and breadth of the rectangle are (5.7 ± 0.1) cm and (3.4 ± 0.2) cm respectively. Calculate the area of rectangle with error limits.
16. The voltage across a wire is (100 ± 5) V and the current passing through it is (10 ± 0.2) A. Find the resistance of the wire.
17. A physical quantity x is given by $x = \frac{a^2b^3}{c\sqrt{d}}$. If the percentage errors in measurement in a, b, c and d are 4%, 2%, 3% and 1% respectively, then calculate the percentage error in calculation of x.
18. What does the principle of homogeneity of dimension say? Give an example.
19. What are the applications of dimensional analysis? *ry, Ph. No.: 9042247637*

II. Answer in a paragraph (5 marks)

1. Define the seven SI base quantities.
2. Write about the various errors in measurement.
3. Write about error analysis.
4. Write about propagation of errors.
5. What are the rules for counting significant figures?
6. What are the rules for Rounding off?
7. What are the four categories into which quantities can be classified on the basis of dimension?
8. Solved example 1.12
9. Solved example 1.13
10. Solved example 1.14
11. Solved example 1.15